

during the Field Meeting at Rannmore on June 18th, including *Cryptocephalus coryli*, *C. moræi*, *Stiroma albomarginata* (developed forms), *Deltocephalus abdominalis*, &c. Mr. Carr, a collection of *Lepidoptera* taken in the Wye Valley during July and August, 1909, including *Leucophasia sinapis*, *Grapta c-album*, a fine series of *Cidaria picata*, &c. Mr. R. Adkin, series of *Endromis versicolor* and *Biston hirtaria* reared from ova sent him from Aviemore in 1908, and read notes on the emergences in 1909 and 1910. Several of the former species, and many of the latter were apparently going over another year. Mr. Sich, a beetle reared from a yellow silken cocoon found at Rannmore Common on *Hippocrepis comosa*. Mr. Cowham, a *Nyssia zonaria*, mainly ♀, but having antennæ slightly pectinated and unusually large wings. Mr. Edwards, a number of large species of *Coleoptera*, among which were *Oxygnathus audouinii* (a gynandromorph) from N. Borneo, *Ceratorrhina morgani* and *C. quadrimaculata* from W. Africa. Mr. W. J. Kaye, numerous aberrant specimens of *Polyommatus icarus*, varying in ground colour, with confluent spots, developed marginal spots, &c. Mr. F. Noad Clark, photographs taken by him during the Field Meeting at Rannmore Common; and reported that *Æ. tipuliformis* had been common in his garden at Wembley, the ♀s "assembling" from about 1.30 to 2 p.m.—HY. J. TURNER, *Hon. Secretary*.

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ON THE BRITISH SPECIES OF *PHORA*.

BY JOHN H. WOOD, M.B.

(Continued from p. 154).

SECTION D.

(32) (31) *Halteres black*.

♂ ♀. A deep black species with clear, almost hyaline, wings:—Thorax and abdomen black, pleural bristles strong and of pretty uniform size; frons fully  $\frac{1}{3}$  broader than long, 4 moderate and nearly equal supra-antennal bristles, the upper ones nearly in alignment with inner bristles of middle frontal row and the under closely approximated, antennæ rather small, palpi black; wings nearly or quite hyaline, thin veins fine and indistinct, thick veins black, 2nd thick vein somewhat arched, hence costal cells deep, costa  $\frac{2}{5}$  wing length, fringe full long, 1 from 2 to 3 times as long as 2 + 3, angle at fork moderate; legs from blackish-brown to deep black, hind tibiæ somewhat dilated towards distal end, and hind metatarsi also somewhat stout, cilia very fine and numerous; hypopygium large and glossy at the base, without bristles or conspicuous hairs, produced below into a pair of incurved processes between which when seen from behind the black and shining subanal body comes into view, at the tips of the processes a small curved hair directed backwards may often be made out, the long and slender ventral plate yellow or dusky, anal organ small and papilla-like, black or dusky yellow.....1 mm. *clavipes*, n. sp.

33 (26) *Mesopleuræ bare*.

34 (39) *Halteres black or brown (halterata)*.

35 (38) *Hypopygium without bristles underneath*.

36 (37) *A large species (2 mm.). Cilia on hind tibia well developed.*

♂ ♀. Thorax and abdomen black; frons scarcely shining, a trifle broader than long, 4 large and nearly equal supra-antennal bristles, the upper ones outside an alignment with inner bristles of middle frontal row, the under closely approximated, inner bristles of lower frontal row much below and a little to the inner side of the outer ones, antennæ of average size, palpi large and deep yellow; wings pale yellowish-brown, costa barely  $\frac{2}{3}$  wing length (♂) about  $\frac{2}{3}$  (♀), fringe moderately long, 1 more than double 2 + 3, angle at fork small especially in ♀, first thin vein in ♀ slightly curved at its origin from the fork; legs yellowish-brown, tibial cilia sparse and strong; male abdomen stout, hypopygium small, without bristles, the yellowish ventral plate broad and reaching in the quiescent state to the middle of the under-side, subanal body invariably concealed, the yellow anal organ short and stout, filling the posterior outlet of the hypopygium...  
2 mm. *maura*, n. sp.

37 (36) *A small species (under 1 mm.). Hind tibiæ quite bare.*

♂. Described from a single specimen:—Thorax and abdomen black; frons black and slightly shining, being somewhat bent in down the centre its characters are rather obscured, but it is certainly broad, the upper supra-antennal bristles in alignment with inner bristles of middle frontal row and the under ones closely approximated, inner bristles of lower frontal row well below the level of outer ones, antennæ rather small, palpi small and dusky yellow; wings nearly clear, thin veins fine and delicate, costa not  $\frac{2}{3}$  wing length, fringe moderately long, 1 not more than half as long again as 2 + 3, angle at fork large; legs blackish-brown, hind femora stout and angulated in the middle of the under-side, hind tibiæ gradually and distinctly thickened in their lower half, and fringed about the middle of their inner side with a few short and erect hairs; hypopygium large, equal in length as well as in its other dimensions to the last abdominal segment, thickly fringed below with fine and short hairs, ventral plate small, anal organ minute and yellow ..... $\frac{3}{4}$  mm. *erecta*, n. sp.

38 (35) *Hypopygium with a pair of conspicuous bristles on each side.*

♂ ♀. Thorax and abdomen black, the former sometimes obscurely reddish; frons about  $\frac{1}{3}$  broader than long, upper supra-antennal bristles of average size and fairly approximate, under ones very much smaller and often not in view, antennæ black or brown, rarely red, palpi pale yellow; wings deeply tinged with yellowish-brown, costa less than  $\frac{2}{3}$  wing length, fringe only moderately long, 1 more than double 2 + 3, 2nd thick vein somewhat incrassated in both sexes and its outer branch turned up abruptly to the costa, angle at fork moderate, 1st thin vein recurved at the margin; legs yellow, hind femora darkened at the tip and the basal half of its under-side loosely fringed with longish hairs, tibial cilia weak; hypopygium of ordinary form and size, almost bare of hairs, and the pair of bristles on each side so close together as often to appear but as a single bristle, the yellow ventral plate broad and reaching only a short way along the under-side, anal organ yellow, short and stout ..... $1\frac{1}{4}$ — $1\frac{1}{2}$  mm. *halterata*, n. sp.

39 (34) *Halteres yellow*.

40 (43) *Hypopygium with one or more conspicuous bristles on each side*.

41 (42) *First costal division more than double the two others. Not a very minute species (1 mm. or more)*.

♂ ♀. An indoor form of preceding species, differing only in its smaller size and yellow halteres, and sometimes in having a more distinctly pale thorax ..... 1—1½ mm. *halterata*, n. sp.

42 (41) *First costal division not double the other two (about 1¾). A very minute species (½ mm. or less)*.

♂ ♀. Not unlike preceding species in some respects, but much smaller and paler:—Thorax from reddish-yellow to dusky red, abdomen black (♂) reddish-grey or brown (♀); frons dark grey, supra-antennal bristles as in *halterata*, antennæ small and yellow; wings yellowish, costa less than ⅔ wing length, fringe moderately long, 2nd thick vein not incrassated nor its outer branch turned up abruptly, angle at fork moderate, 1st thin vein not recurved at margin; legs pale yellow, fore tarsi somewhat short and thick, the metatarsi shorter than the two following joints, tip of hind femora blackish, tibial cilia fine and indistinct; in the only male before me (taken *in cop.*) the hypopygium has apparently but a single strong bristle on each side, the ventral plate is small and inconspicuous, the subanal body very large, and the anal organ small and yellow...

barely ½ mm. *minutissima*, n. sp.

43 (40) *Hypopygium without bristles*.

♂ ♀. In size and appearance very like *simplex*; but apart from the bare mesopleuræ, it differs in having a broader frons, smaller supra-antennal bristles (the under pair being almost minute), and a longer and finer arista; the costa too is longer—⅔ wing length (♂) and rather more (♀), the fringe only moderately long, the legs yellowish-brown rather than black, the tibial cilia more distinct and the seam deflected outwards a little below the middle instead of being continued straight as in *simplex*...

1—1¾ mm. *exigua*, n. sp.

*Fasciata*, Fall.—A widely distributed species. The male seems to be seldom met with, but the female is not uncommon. On one occasion I came across a swarm (apparently all females) hovering at the roots of an old and half decayed ash tree. Although coming under this Section, it looks out of place among its associates, and bears a much closer resemblance to the *meigeni* group in Section B, agreeing with it in its yellow colouring, short costal fringe, doubly ciliated tibiæ, and in type of hypopygium—characters, especially the last two, which would, I think, justify their inclusion in a separate genus. The relationship to the *meigeni* group is further shown in that the anterior scutellar bristle is often represented in the female *fasciata* by a large and coarse hair.

*Pallens*.—A very distinct looking species, of which I took a single male at Westhide 21/6/05. Two others, I hear from Mr. Collin, are in Mr. Verrall's collection, taken by Colonel Yerbury at Porthcawl in 1906. Here again the insect seems out of place among the species associated with it, and reminds one much more of some of the forms in B, the Section with 4 bristles to the scutellum. And should the female be found to have four scutellar bristles, as is not altogether unlikely, the species would have to be moved into that Section, where it would fall in beside *albicans* and *rata*, both of which have a shortish arista and other characters in agreement with it.

*Spinata*.—A single male, taken in Stoke Wood 17/9/07. Its great feature is the very large and conspicuous pleural bristle, the nature of which will be referred to later on in the remarks on *pectoralis*. Other characters deserving attention are the distinctly ciliated hind tibiæ and the long anal organ.

*Serrata*.—This again is another very distinct little species, which I have had no scruple in describing on a single male, taken in the garden 10/7/06. The dilated terminal joint of the fore tarsi is its most prominent and distinguishing characteristic, though equally important, were they not so microscopic, would be the serrations under the hind femora. Both, however, may be purely male characters (the first certainly is so), and the recognition of the female would depend mainly upon the small and closely approximated supra-antennal bristles, and the hyaline wings with their colourless thin veins.

*Verralli*.—This interesting insect was discovered by Mr. Verrall, after whom I have the pleasure of naming it, at Swanage; a male being captured 6/9/06 and two females 4/9/06. The hind margins of the abdominal segments, narrowly but conspicuously whitish, and alike in both sexes, catch the eye at once, and distinguish it from any other species I am acquainted with.

*Latifrons*.—Described from five males in my collection, taken in such widely separated and for the most part wet localities as Stoke Wood, Shobdon Marsh, the Monnow, and Middle Park Pool, four of them in July and one in October. Recently I received from Colonel Yerbury both sexes of a form which I was at first inclined to treat as a distinct species under the name of *yerburyi*, but now think it safer to consider as a variety of *latifrons*. The chief almost the only distinction lies in the form of the hypopygium, which is not produced below into a point and also wants the little bunch of hairs characteristic of the type. The other and less important difference is the paler halteres—

brown in the male and almost yellow in the female. Yerbury met with it in large numbers at Walton-on-Naze, sweeping it on the first occasion (26/6/09) from the ditch separating the salt from the fresh water marsh, and two or three weeks later he again found it in the same locality running actively about on the sea wall.

*Pygmæa*, Zett.—A common and well-known indoor insect, found more rarely in the woods or fields. Our insect is the dark or type form, the *pygmæa* of Zetterstedt, and it is doubtful whether we have typical *brachyneura*, Egg, the variety in which the thorax is red or yellow. The nearest approach to it is given by an obscurely reddish thorax and red antennæ in a few examples only out of the many I have examined. Individuals, however, with yellow legs but in other respects black are more often met with. Becker, dismissing the type in little more than a couple of lines, devotes his description to the variety *brachyneura*, and speaks of the hind tibiæ being tenderly (*zart*) ciliated. In my judgment, however, the cilia are both strong and sparse, at any rate in the insect commonly accepted as *pygmæa* with us.

*Lata*.—Two males, taken by sweeping in Stoke Wood 20/9/08. Agreeing in size and many other particulars with *angelicæ*, it may be differentiated from that species by the dull frons, the not only slender but also to my eye the somewhat lengthened fore tarsi, by the stout abdomen and the form of the hypopygium with the absence of bristles or of any special hairy development on it.

*Angelicæ*.—An autumnal species, frequenting commonly the flowers of *Angelica* and *Heracleum*, and also to be obtained by general sweeping. Its small size and bare pleuræ, distinctly if only moderately shining frons with its closely approximated supra-antennal bristles—an unusual condition in these very small forms, the normal fore tarsi (neither specially slender nor stout) together with the small bristle at the corners of the hypopygium leave its identification in little doubt.

*Longipalpis*.—A scarce and very interesting species, of which only five males have been obtained; the dates and localities being Stoke Wood 2/8/05, 11/6/06, 11/6/06, Westhide 7/6/06, and Coldborough Park 20/8/06. The female has not been met with or possibly has been overlooked, since it would almost certainly lack the striking character which has suggested the name of the species, namely, the very large and almost bare palpi. These remarkable organs resemble in shape the large palpi of *Phora nudipalpis* rather than those of *projecta*.

*Gregaria*.—The only occasion on which I ever met with this tiny



little species was on June 13th, 1905, when I came upon it running in numbers over the trunk of a small oak tree in Stoke Wood. All the specimens I secured were males.

*Rufifrons*.—One female only captured in Stoke Wood 30/8/06. The short costal ciliation gives to some of the species in this Section a strong likeness to the short ciliated group in C, and none perhaps more so than *rufifrons*. The only species, however, in that group for which our insect might be mistaken is *surdifrons*. But the marked difference in the length of the costa—conspicuously less than half the wing length in the one and barely short of it in the other (at least in the female), and the very different proportions of the costal divisions, clearly differentiate them. At one time I was inclined to think it might be the female of the preceding species. But against that idea had to be set such considerations as the shorter costal fringe, the darker and coarser veins, and the arched and more distinctly ciliated hind tibiæ, not to mention the great contrast in colour and the unlikelihood that so pale a form should exist of the dark and black fronted *gregaria*. The depression in the outline of the costa may possibly be accidental, but the fact of its being the same on both wings favours the view that it is natural.

*Pectoralis*.—This small and deep black insect I take plentifully all over my district and in every month of the year from May to October. As in *ciliata*, *æqualis* and some others, so in *pectoralis* I usually confirm its identification on removal from the killing-bottle by looking for the large and remarkable bristle on the mesopleuræ. This bristle will be found close under the root of the wing. It seems to be quite distinct from the ordinary bristles, and in the fresh state lies close against the side, directed horizontally backwards instead of sloping diagonally upwards as they do. Where one of the ordinary bristles is enlarged, as, for instance, in *pleuralis*, it retains its diagonal upward direction, and is, I think, always one of those at the lower corner of the patch. Hence as a character it is less reliable than the other.

*Involuta*.—Mr. Collin was the first to recognise, and suggest the name of, this species; and from his specimens (three males and one female) my description was chiefly drawn. His dates and localities were:—for the males Newmarket 28/6/94, 10/9/09, and Kirtling 1/3/06, for the female Kirtling 7/3/06. Since then he writes me that he took a pair at Chippenham Fen 7/3/10, and a little later obtained it in numbers by beating a box tree in his garden at Newmarket. Of a pair of my own, the female is a good specimen and was taken by

sweeping in that prolific place Stoke Wood 17/4/07, but the male has the end of the abdomen injured, and it is only by the approximated supra-antennal bristles, the thickened fore tarsi, and bristly pleuræ that it can be confidently referred to this species. The colour of the halteres is usually so constant, that it comes as a surprise to find it variable here, the variability as in the few other instances of its occurrence being independent of sex.

*Simplex*.—An indoor insect, common on the windows here in the autumn, but rare at Newmarket. Whilst quite distinct from the preceding species, from which the slender (normal) fore tarsi and other characters readily differentiate it, it bears a close resemblance to *exigua*, a species which also is a frequent visitor of our houses in the autumn. Here, however, the bristly nature of the pleuræ in the one insect and their bareness in the other, apart from some smaller and less important distinctions, amply separate them.

*Clavipes*.—A deep black and abundant species, occurring in May and again in the autumn; probably also of wide distribution, for Mr. Collin takes it freely on his side the country. Its most obvious features are the limpid wings with their long costal fringe and crowded thick veins, deep costal cells and clubbed hind tibiæ, and strongly bristled pleuræ. Among my material are two males which vary from the type by having a shorter costal ciliation, but as there are no other differences, they are doubtless nothing more than a variety. With better claim, however, to specific rank is a form which has been chiefly taken by Mr. Collin at Newmarket. In this the palpi are yellowish rather than black and the hypopygium appears different. But these are its only peculiarities, and for the present I prefer to look upon it as a variety. The male hypopygium is unquestionably a character of the highest importance, yet there is often a difficulty over the details. The very smallness of the parts handicaps one greatly, moreover the position may be unfavourable for examination, or other parts, as the legs, may get in the way, whilst the organ itself wears a very different aspect according as the inner parts are exposed or not. Hence caution is needed when dealing with species that measure so little as 1 mm.

*Maura*.—This is another of those insects that are fond of entering the house. It makes its appearance in the autumn and again in smaller numbers in the spring, doubtless after hibernation. Its large size, bare pleuræ and black halteres, the massing of the thick veins at the end of the costa, and the strong and sparse tibial cilia are the salient points about it.

*Erecta*.—A single male taken in Stoke Wood 12/5/06. I have ventured to distinguish this little species; firstly because of the unusual clubbed shape of the hind tibiae with the curious little erect hairs on the inner and under-side, and secondly because of the form of the hypopygium and its papilla-like anal organ, which are quite unlike those of its neighbours and follow the type presented by *discreta* and *nudiventris* in Section C.

*Halterata*.—A common and widely distributed species. The black form with dusky halteres is the larger insect, and is found almost exclusively in the woods, whilst the paler and smaller one with yellow halteres frequents as exclusively the house or garden. That the two are, however, one and the same species, I think there can be little doubt. At one time I was inclined to refer it to the *pumila* of Meigen, and have, I am afraid, so returned it to some of my correspondents. *Pumila* according to Becker should have only ten short bristles on the hind tibiae, whereas in our insect the cilia—they are not worthy the name of bristles—are very numerous and very delicate, which makes it quite impossible for it to be that species. In roughly recognising *halterata* I look for three chief points—the pair of strong and closely approximated bristles (should it be a male) under the hypopygium, the recurved first thin vein, and the massing of the thick veins at the end of the costa with the 2nd vein thick and strong and its outer branch turned up abruptly to the costa.

*Minutissima*.—Quite a mite of a species. As long ago as September 2nd, 1902, I found a small family of it running up and down the window of a house at Ledbury. A few were secured, including two pairs *in cop.*, and of these I still possess in good condition one of the pairs and two odd females. I have been on the look out for it since, but the opportunity of taking it has never again presented itself. A suggestion once made to me that it might be a diminutive and unusually yellow form of *halterata* is negatived by the important differences in the costa and its supporting thick veins, by the straightness of the 1st thin vein as well as by the other and smaller distinctions.

*Exigua*.—This is another of the species fond of disporting itself on our windows. It is abundant in the autumn and probably of wide distribution. Its likeness to *simplex* is very close, but the bare mesopleuræ should always distinguish it.

(To be continued).

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